شبكة المعلومات الجامعية

# بسم الله الرحمن الرحيم


HOSSAM MAGHRABY


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# التوثيق الالكتروني والميكروفيلم

HOSSAM MAGHRABY

شبكة المعلومات الجامعية

# جامعة عين شمس

## التوثيق الإلكتروني والميكروفيلم

## قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها

علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

## يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

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# بالرسالة صفحات

# لم ترد بالأصل

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# NORMOTHERMIC TECHNIQUE DURING OPEN HEART OPERATIONS

THESIS

*Submitted for Partial fulfillment of the requirement of the M.D. Degree*

In

**Cardiothoracic Surgery**



By

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2001

بسم الله الرحمن الرحيم

# إنما يخشى الله من عباده العلماء

صدق الله العظيم

(سورة فاطر: الآية ٢٨)

*To*
*My*
*Family*

# CONTENTS

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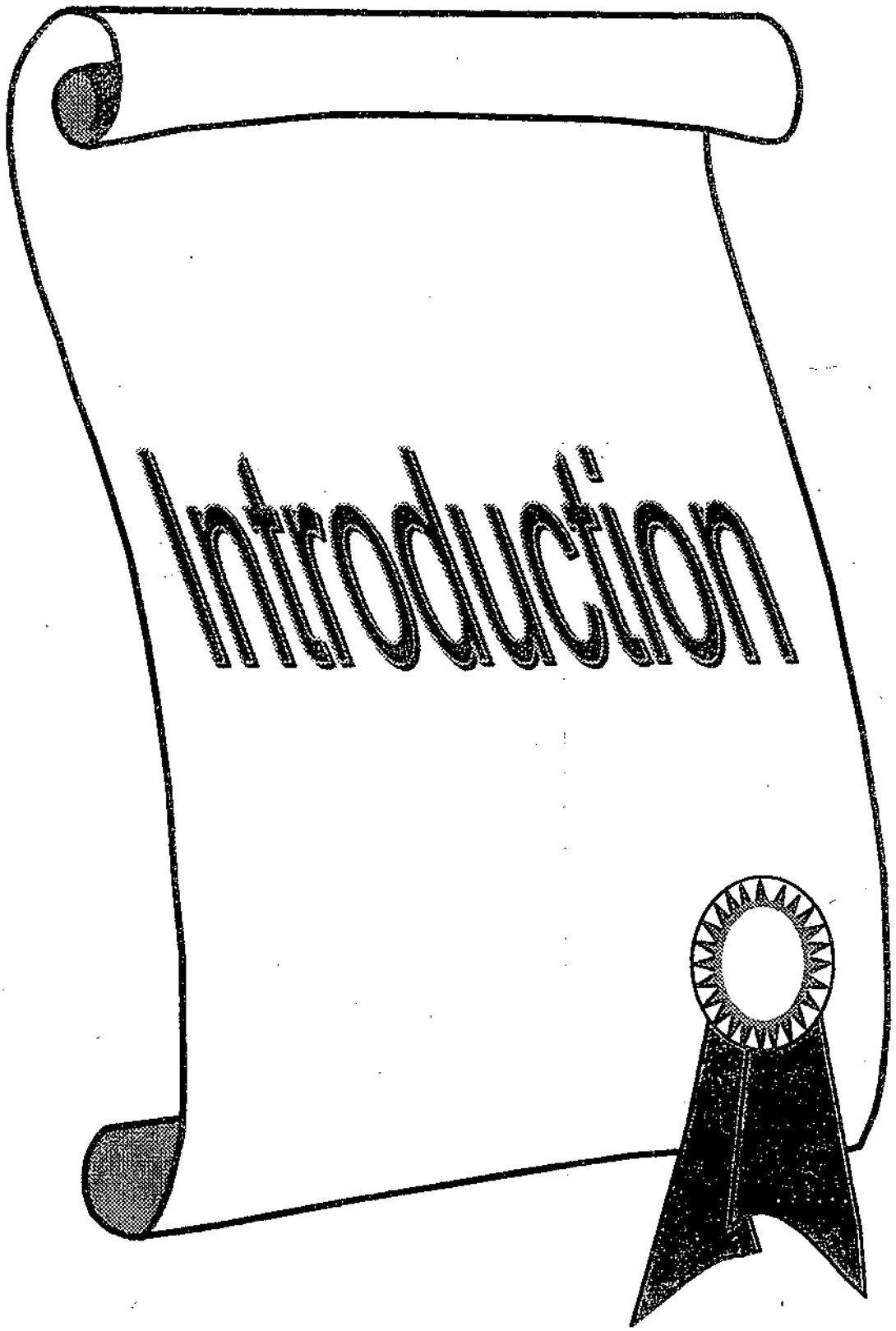
## LIST OF ABBREVETION

| | |
|---|---|
| ACT | : Activated clotting time. |
| ADP | : Adenosine diphosphate |
| AF | : Atrial fibrillation. |
| ALT | : Alanine transaminase. |
| AMP | : Adenosine monophosphate |
| AST | : Aspartate transaminase. |
| ATP | : Adenosine triphosphate |
| AVN | : Atrioventriclar node. |
| AVR | : Aortic valve replacement. |
| C I | : Cardiac index. |
| $Ca^{++}$ | : Calcium. |
| CABG | : Coronary artery bypass grafting. |
| CK | : Creatine kinase . |
| CK-MB | : Creatine kinase myocardial izo enzyme. |
| COP | : Cardiac output. |
| CPB | : Cardiopulmonary bypass |
| EACA | : Amino caproic acid |
| ECG | : Electrocardiography |
| EF | : Ejection fraction |
| $H^+$ | : Hydrogen. |
| IABP | : Intraaortic balloon pump |
| ICU | : Intensive care unit. |
| IWBC | : Intermittent warm blood cardioplegia. |
| $K^+$ | : Potassium. |
| KCL | : Potassium chloride |
| LA | : Left atrium. |
| LAD | : Left anterior descending artery |
| LDH | : Lactic deydrogenase . |
| LV | : Left ventricle. |
| $Na^+$ | : Sodium. |
| NADH | : Dihydronicotinamide dinuclotide. |
| No | : Nitric oxide |
| PTT | : Partial thromboplastin time. |
| PVCs | : Premature ventricular contractions. |
| RA | : Right atrium. |
| RV | : Right ventricle. |
| SGOT | : Glutamic oxalacetic transaminase . |
| SGPT | : Glutamic purvate transaminase . |
| TEA | : Tranexamic acid . |


Introduction

# *INTRODUCTION*

Open heart surgery has been widely regarded as one of the most important medical advances of the 20th century, the key stone of this progress has been the cardiopulmonary bypass[1].

Hypothermia had a number of deletrious effects on enzyme function, energy generation and cell membrane functions despite of this fact, the hypothermia has been denominator of almost all methods of myocardial protection[2].

Since the beginning of cardiac surgery, currently hypothermic cardioplegic arrest is the most widely used technique of myocardial protection. Advances in cardiosurgical practice based on this technique have made heart surgery relatively routine, although poor results are still observed occasionally [3].

Electromechanical arrest decreases myocardial oxygen consumption to near minimal levels with little further gain attributable to even profound hypothermia[4].

Normothermic techniques have been proposed by a number of workers as an improved method of myocardial protection compared with conventional hypothermic regimens and as a more physiologic means of maintaining the body homeostatic functions during cardiopulmonary by pass [5,6].

Continuous warm blood cardioplegia has been introduced as an alternative technique for achieving myocardial protection, avoiding ischaemia and subsequent reperfusion injury and eliminating the adverse effects of hypothermia[5].

Continuous infusion of the cardioplegia may obscure the operative field so, intermittent warm blood cardioplegia has been proposed an effective method of achieving myocardial protection and a better surgical field [7], but it carries a question about the period of time during which the myocardium can tolerate interruption of normothermic cardioplegic infusion [8].

Body temperature during cardiopulmonary bypass is another controversial issue, indeed, hypothermia decreases end organ oxygen consumption and may offer, some degree of protection during periods of low flow or low perfusion pressure, but it also has side effects, so tissue protection during hypothermia, has also been questioned [9].

Inspite of beneficial effects of normothermic heart surgery there are many concerns about the clinical outcome and effects of normothermic blood cardioplegia on : Postoperative myocardial performance and ventricular functions[10,11,12] also there are concerns about hematological functions and postoperative blood loss[13], neurologic function[14], metabolic and haemodynamic parameters[15] with normothermic perfusion.


Aim Of The Work